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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,922	07/28/2003	Larry D. Benjamin	070386-0303769	3610

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EXAMINER	
VERBITSKY, GAIL KAPLAN	
ART UNIT	**PAPER NUMBER**
2859	

DATE MAILED: 05/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/627,922	BENJAMIN, LARRY D.	
	Examiner	Art Unit	
	Gail Verbitsky	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22 and 24-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22 and 24-30* is/are rejected.

7)☒ Claim(s) *15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *attachment #1*.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-14,16-18, 21-22, 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deak et al. (U.S. 5662418) [hereinafter Deak] in view of Villar (U.S. 4444990).

Deak discloses in Figs. 4D and 5 a device comprising a temperature probe 10 for measuring an internal temperature of a packed/ contained mass (hot gas stream in a pipe. There is a control device (measurement transducer) 26 electrically communicating with a thermocouple and operable to determine the temperature measured by the thermocouple. Furthermore, the device having a lifting mechanism comprising a spring 36, as shown in Fig. 5, the lifting mechanism is coupled to an elongated tubular shaft 11 by means of a structure 34 and to the control device 26 by means of structures 31, 32, 44, 24, 25, and operable to move the heat conducting structure 46 enclosed within the elongated shaft 11 and the elongated tubular shaft 11 between raised and lowered positions.

Deak does not explicitly teach the particular probe 10 structure, as stated in claim 1, with the remaining limitations of claims 1-14,16-18, 21-22, 24-30.

Villar discloses in Figs. 2-3 a device comprising a temperature probe for measuring a temperature of a hot object (packed mass/ product). The probe comprising an elongated tubular shaft A having a hollow interior, the hollow interior comprises an insulating structure 46 and 52, a heat conducting structure (cap) 48 coupled to the insulating structure 46 and 52 and thermally insulating the heat conducting structure 48 from the tubular shaft A; a thermocouple 54, 56 extending through the hollow interior of the elongated shaft A and coupled to the heat conducting structure (by spot welding) 48. There is a control device (measurement transducer) 10 electrically communicating with the thermocouple and operable to determine the temperature measured by the thermocouple. Furthermore, the device comprises a lifting mechanism comprising a spring 38, the lifting mechanism is coupled to the elongated tubular shaft A and to the control device 10 by means of structure 14 and the thermocouple wires, and operable to move the heat conducting structure 48 and the elongated tubular shaft A between raised and lowered positions; wherein, said heat conducting structure 48 is disposed in contact with the hot object (packed product) and transmit thermal energy to the control device 10.

For claim 24: Villar teaches an air gap (temperature control assembly) 52 close to the heat conductive structure 48, the temperature control assembly 52 is intended to insulate the heat conductive structure 48 from a shell of the device and thus, from the tubular shaft during temperature readings, and to allow the shell 32, and thus, the tubular shaft to contact the heat conducting structure 48 after the temperature readings

are taken in order to speed up the cooling (or heating) of the thermocouple, and thus, the heat conductive structure 48 to ambient.

For claim 25: Villar states, that when the temperature reading is completed, the device, including the heat conducting structure 48, is removed from the object and allowed to cool to ambient for the next reading, thus, Villar suggests a step of changing (cooling) the temperature of the heat conductive structure when it is outside a predetermined (ambient) so as to allow to operator to prepare the device for temperature measurements.

For claim 6: the thermocouple 54 is supported within a shaft by a tubular support 56.

For claim 9: the insulating structure 46 is mounted to a distal end of the tubular shaft, as shown in Figs. 2-3.

For claim 10: the insulating structure 46 is made of Foamsil-28. It is very well known in the art that the majority of heat insulating structures are not perfect heat insulators, therefore, they, at least at some degree, are permeable to heat/ radiant energy.

For claims 17-18: having a substantially conical shape, the heat conducting structure is acting as a thermal choke by taking more heat from the object onto a region of its maximal heating from the object (conical portion).

For claim 30: the lifting mechanism (spring) 38 is coupled to the insulated shaft A and the temperature controller 10, the temperature controller is coupled to the heat conducting structure 48 and maintains it within ambient temperature range prior to temperature readings by allowing mechanical movement that brings the heat conductive structure 48 in contact with the shell 32 and speed up the cooling or heating.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the probe, disclosed by Deak, with the probe, as taught by Villar, because both of them are alternate types of temperature probes which will perform the same function of measuring temperature of an object by going from raised to lowered position, if one is replaced with the other.

With respect to claims 2-3, 26: the use of the particular material, i.e., brass, platinum or gold (metal), absent any criticality, is only considered to be the "optimum" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the heat conducting structure disclosed by Deak since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

With respect to claims 4-5: the use of the particular material, i.e., metal, such as stainless steel or mild metal, to make a shaft, absent any criticality, is only considered to be the "optimum" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the shaft disclosed by Deak since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

With respect to claim 7: the use of the particular material, i.e., plurality of cotton fibers, to make a support structure, absent any criticality, is only considered to be the "optimum" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the support structure disclosed by Deak since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

With respect to claims 11-14: the use of the particular material, i.e., polycarbonate or high impact polycarbonate (plastic), to make an insulating structure, absent any criticality, is only considered to be the "optimum" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the insulating structure disclosed by Deak since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

With respect to claims 27-28: The particular duration of maintaining the heat conducting structure in the mass/ object, i.e., 20 seconds to about 90 seconds or less than 2 minutes range, absent any criticality, is only considered to be the "optimum" duration used by Deak that a person having ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation based, among other things, on the type of the mass, etc. ***See In re Boesch, 205 USPQ 215 (CCPA 1980).***

With respect to the preamble of claim 1: the preamble of the claims does not provide enough patentable weight because it has been held that a preamble is denied the effect

of a limitation where the claim is drawn to a structure and a portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. Kropa v. Robie, 88 USPQ 478 (CCPA 1951).

The method steps will be met during the normal operation of the device stated above.

(The numeral A has been added by the Examiner, see attachment # 1 to the Office Action)

3. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deak and Villar, as applied to claims 1-14,16-18, 21-22, 24-30 above, and further in view of Wu et al. (U.S. 6712996) [hereinafter Wu].

Deak and Villar disclose the device/ method as stated above in paragraph 2.

They do not explicitly teach a type T thermocouple.

Wu states that type T thermocouples are commonly used to measure temperature in a range of –200 C to about 350 C.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the thermocouple, disclosed by Deak and Villar, with the T type thermocouple, as taught by Wu, so as to make the thermocouple capable to operate within a high temperature range, as already suggested by Wu.

4. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deak and Villar claims 1-14,16-18, 21-22, 24-30 above, and further in view of Mauze et al. (U.S. 6202480) [hereinafter Mauze].

Deak and Villar disclose the device/ method as stated above in paragraph 2.

They do not explicitly teach a micro fine thermocouple.

Mauze teaches the use of a micro-thermocouple sensors for determining temperature and humidity.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the thermocouple, disclosed by Deak and Villar, with a nicro-thermocouple (micro-fine), as taught by Mauze, so as to allow the operator to also determine humidity of the object, especially when the object should be kept at a predetermined humidity level.

5. Claims 1-14,16-18, 21-22, 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Villar (U.S. 4444990) in view of Kaufman (U.S. 4595300).

Villar discloses in Figs. 2-3 a device comprising a temperature probe for measuring a temperature of an object (packed mass). The probe comprising an elongated tubular shaft A having a hollow interior, the hollow interior comprises an insulating structure 46 and 52, a heat conducting structure (cap) 48 coupled to the insulating structure 46 and 52 and thermally insulating the heat conducting structure 48 from the tubular shaft A; a thermocouple 54, 56 extending through the hollow interior of the elongated shaft A and coupled to the heat conducting structure (by spot welding) 48. There is a control device (measurement transducer) 10 electrically communicating with the thermocouple and operable to determine the temperature measured by the thermocouple. Furthermore, the device comprises a lifting mechanism comprising a spring 38, the lifting mechanism is coupled to the elongated tubular shaft A and to the control device 10 by means of structures 14 and the thermocouple wires, and operable

to move the heat conducting structure 48 and the elongated tubular shaft A between raised and lowered positions; wherein, said heat conducting structure 48 is disposed in contact with the hot object (packed product) and transmit thermal energy to the control device 10.

For claim 24: Villar teaches an air gap (temperature control assembly) 52 close to the heat conductive structure 48, the temperature control assembly 52 is intended to insulate the heat conductive structure 48 from a shell of the device and thus, from the tubular shaft during temperature readings, and to allow the shell, and thus, the tubular shaft to contact the heat conducting structure 48 after the temperature readings are taken in order to speed up the cooling (or heating) of the thermocouple, and thus, the heat conductive structure 48 to ambient.

For claim 25: Villar states that when the temperature reading is completed, the device, including the heat conducting structure 48 is removed from the object and allowed to cool to ambient for the next reading, thus, Villar suggests a step of changing (cooling) the temperature of the heat conductive structure when it is outside a predetermined (ambient) so as to allow to operator to prepare the device for temperature measurements.

For claim 6: the thermocouple 54 is supported within a shaft by a tubular support 56.

For claim 9: the insulating structure 46 is mounted to a distal end of the tubular shaft, as shown in Figs. 2-3.

For claim 10: the insulating structure 46 is made of Foamsil-28. It is very well known in the art that the majority of heat insulating structures are not perfect heat insulators, therefore, they, at least at some degree, are permeable to heat/ radiant energy.
For claims 17-18: having a substantially conical shape, the heat conducting structure is acting as a thermal choke by taking more heat from the object onto a region of its maximal heating from the object (conical portion).
For claim 30: the lifting mechanism (spring) 38 is coupled to the insulated shaft A and the temperature controller 10, the temperature controller is coupled to the heat conducting structure 48 and maintains it within ambient temperature range prior to temperature readings by allowing mechanical movement that brings the heat conductive structure 48 in contact with the shell 32 and speed up the cooling or heating.

Villar does not explicitly teach that the heat conductive structure is disposed within the mass of packed product (within the object), as stated in claims 1, 25, with the remaining limitations of claims 1-14,16-18, 21-22, and 24-30.

Kaufman teaches to measure temperature inside a packed sample 11. Kaufman also teaches a digital computer (programmable logic).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the device disclosed by Villar so as to measure the temperature within the object, as taught by Kaufman, so as to obtain the core temperature of the object, as taught by Kaufman, because the core and surface temperatures of the object could be different, and the surface temperature of the object does not always represent the core temperature.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the control device disclosed by Villar, with a digital computer/ programmable logic, as taught by Kaufman, so as to provide a fast and accurate control over the device, as very well known in the art.

With respect to claims 2-3, 26: the use of the particular material, i.e., brass, platinum or gold (metal), absent any criticality, is only considered to be the "optimum" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the heat conducting structure disclosed by Villar since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

With respect to claims 4-5: the use of the particular material, i.e., metal such as stainless steel or mild metal, to make a shaft, absent any criticality, is only considered to be the "optimum" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the shaft disclosed by Villar since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

With respect to claim 7: the use of the particular material, i.e., plurality of cotton fibers, to make a support structure, absent any criticality, is only considered to be the

"optimum" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the support structure disclosed by Villar since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

With respect to claims 11-14: the use of the particular material, i.e., polycarbonate or high impact polycarbonate (plastic), to make an insulating structure, absent any criticality, is only considered to be the "optimum" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the insulating structure disclosed by Villar since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. In re Leshin, 125 USPQ 416.

With respect to claims 27-28: The particular duration of maintaining the heat conducting structure in the mass/ object, i.e., 20 seconds to about 90 seconds or less than 2 minutes range, absent any criticality, is only considered to be the "optimum" duration used by Villar that a person having ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation based, among other things, on the type of the mass, etc. ***See In re Boesch, 205 USPQ 215 (CCPA 1980).***

With respect to the preamble of claim 1: the preamble of the claims does not provide enough patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and a portion of the claim following the preamble is a self-contained description of the structure not depending for

completeness upon the introductory clause. Kropa v. Robie, 88 USPQ 478 (CCPA 1951).

The method steps will be met during the normal operation of the device stated above.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Villar and Kaufman, as applied to claims 1-14,16-18, 21-22, 24-30 above, and further in view of Wu et al. (U.S. 6712996) [hereinafter Wu].

Villar and Kaufman disclose the device/ method as stated above in paragraph 5.

They do not explicitly teach a type T thermocouple.

Wu states that type T thermocouples are commonly used to measure temperature in a range of –200 C to about 350 C.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the thermocouple, disclosed by Villar and Kaufman, with the T type thermocouple, as taught by Wu, so as to make the thermocouple capable to operate within a high temperature range, as already suggested by Wu.

7. Claim 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Villar and Kaufman claims 1-14,16-18, 21-22, 24-30 above, and further in view of Mauze et al. (U.S. 6202480) [hereinafter Mauze].

Villar and Kaufman disclose the device/ method as stated above in paragraph 5.

They do not explicitly teach a micro fine thermocouple.

Mauze teaches the use of micro-thermocouple sensors for determining temperature and humidity.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the thermocouple, disclosed by Villar and Kaufman, with a micro-thermocouple (micro-fine), as taught by Mauze, so as to allow the operator to also determine humidity of the object, especially when the object should be kept at a predetermined humidity level.

Allowable Subject Matter

8. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9. Applicant's arguments with respect to claims 1-14, 16-22, 24-30 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gail Verbitsky whose telephone number is 571/ 272-2253. The examiner can normally be reached on 7:30 to 4:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571/ 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ciaravino et al. (U.S. 5697706) discloses a probe whose tubular shaft 20 is made of stainless steel.

GKV

Gail Verbitsky
Primary Patent Examiner, TC 2800

May 02, 2005

Villar

10627922

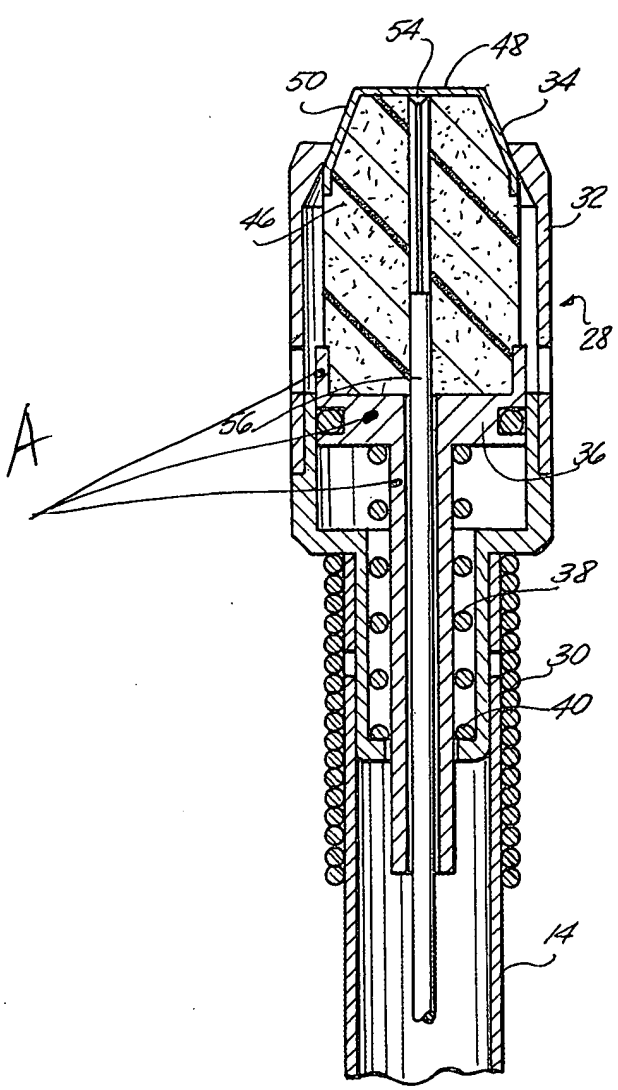

FIG. 2

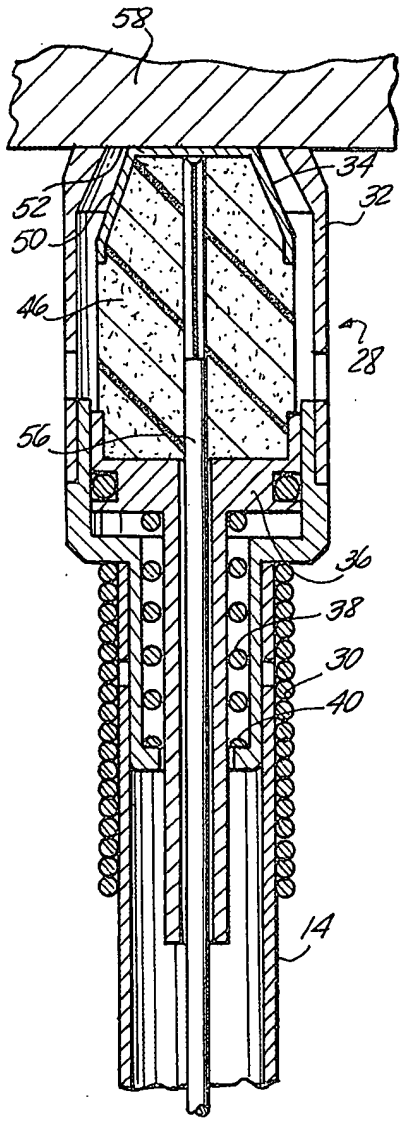

FIG. 3

attachment # 1
(05/2005)